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preservation of existing types of species and genera in all three natural worlds is the effect of unknown forces independently acting in reproductive cells and organs, as well as in mineral atoms and molecules. If we may expect ever to notice the formation of a new species under our eyes, this event will not depend upon external conditions, but upon a change in the nature of protoplasma, or of the chemical structure of a mineral molecule. The author does not doubt that such changes are continually going on in nature, but they are too slow and subtile to be accessible to our observation. The chief part in such changes will always be due to agents or forces peculiar to the elementary organs and exerting impulses, by which permanent forms are resulting.

CONTRIBUTIONS TO COCCIDOLOGY.—II.

By T. D. A. Cockerell, Mesilla, New Mexico.

No. I appeared in American Naturalist, Aug., 1895, pp. 725–732.

(1). *Icerya rileyi* Ckll. In September, 1893, I bred a *Lætilia* from a larva living on *I. rileyi* on mesquite at Las Cruces, N. M. The Rev. G. D. Hulst informed me that it was "different from *coccidivora* and from *L. ephestiella*, a good variety at least." It may, therefore, be as well to put its characters on record:—

Lætilia coccidivora var. *hulstii*, n. var.—Palpi ascending; fore wings gray, brownish at extreme base and beyond the first band. The first band, at end of basal third, double, consisting of a gray line bordered without by a white band. A wavy band consisting of two blackish lines not far from the exterior margin. Hind wings shining white; abdomen above whitish, banded with gray. It would seem to connect *coccidivora* with *ephestiella*, and so, perhaps, all are varieties of one.

(2). *Rhizococcus* (*?*) *devoniensis* Green, Ent. Record, 1896, p. 260. I should certainly prefer to call this *Eriococcus devonien-*

sis. We know already several species of *Eriococcus* with 7-jointed antennæ; the subgeneric name *Thekes* Crawford ms., is available for them.

(3). *Phenacoccus comari* (Kunow). *Coccus comari* Kunow, Ent. Nachr., 1880. Near Königsberg. See also Douglas, Ent. Mo. Mag., xvii, p. 90. The description appears to indicate a *Phenacoccus*, but it is very short.

(4). *Dactylopius edgeworthiæ*, n. sp.—♀ about or hardly 2 mm. long, pale gray, with light brown legs and antennæ. Form oval, back so thickly dusted with white meal as to appear white with a grayish tint; no distinct lateral or caudal appendages; extremely short, hardly noticeable thick caudal tufts. The white secretion on the back forms three more or less distinct longitudinal rows of small protuberances, giving the insect an obscurely tricarinate appearance. Immature ♀ similar, but not so mealy.

♀ boiled in KHO turns very dark lake-red, but does not stain the liquid. Antennæ 7-jointed, formula 7 (32) (41) 65. 3 is perhaps a *little* longer than 2; 7 is considerably longer than 5+6; 5 is very little shorter than 6; 4 is conspicuously shorter than 2 or 3. Legs ordinary, femur quite stout, its upper edge convex; tibia a little shorter than femur, stout; tarsus a little shorter than tibia. Claw moderate, with a minute denticle on its inner side. Digitules of claw slender, somewhat curved, extending a little beyond tip of claw, with fairly distinct knobs; no tarsal digitules. Anal ring with the usual six bristles. Caudal tubercles very low, ordinary, each with a large bristle, some short ones, round glands and a pair of conical spines. The insect throughout is very little hairy. The skin exhibits numerous gland-dots.

♂ sac ordinary; a ♂ with wings expanded taken from a sac. Length of body about $1\frac{2}{5}$ mm.; head to tip of wing about 2 mm. Wings white, the nervures very distinct, costa not at all darkened. Antennæ pale ochreous, head pale olivaceous, prothorax dark slate gray,

mesothorax pale ochreous, strongly contrasting. Abdomen dark olivaceous, legs white, with a yellow tinge. The pale ochreous color of the middle of the thorax is continued beneath, contrasting with the parts before and behind; eyes red. ♂ hatching at the end of March.

Hab.—Japan, on stems of *Edgeworthia papyrifera;* found by Mr. Alex. Craw in the course of his horticultural quarantine work. While the antennæ are but 7-jointed, the legs are those of a *Phenacoccus.*

(5). *Erium,* Crawford, ms. This name will stand for the subgenus of *Dactylopius* without lateral cottony tufts, forming complete separate cottony sacs. The type is *D. globosus* Maskell. The species are found in America, the Sandwich Islands, New Zealand, Australia and S. Africa.

(6). *Asterolecanium bambusæ* var. *bambusulæ,* v. nov.—♀ scale elongate-oval, 2 mm. long, 1 broad, dullish, not at all keeled, barely narrower behind than in front, where it is broadly rounded. Color very pale sulphur-yellow, dark at one end from the body of the ♀ showing through. Fringe short, pinkish, the pairs of rods mostly diverging at tips. ♀ turns in orange in KHO. Part of margin with a single row of glands, in pairs, but not actually touching, all very close together; and part with in addition a row of very small single glands, about three to each two pairs of the larger paired glands. Scattered glands elsewhere, not numerous.

Hab.—On stems $1\frac{2}{3}$ mm. diam. of a small cultivated bamboo. Botanic Gardens, Grenada, West Indies, collected by Mr. W. E. Broadway, Nov. 16, 1895. One specimen is attacked by a dark brown fungus.

(7). *Pulvinaria simulans* Ckll.—Monterey, Mexico (C. H. T. Townsend). New to Mexico. Antennæ 7-jointed.

(8). *Lecanium ceratoniæ* Gennadios, 1895.—Found in Cyprus. The few words of description indicate *L. hesperidum,* to which this species must be referred, unless its author can show some reason to the contrary.

(9). *Lecanim flaveolum* Ckll.—From the original type lot I bred *Coccophagus flavoscutellum*, Ashm., identified for me through Mr. Marlatt.

(10). *Lecanium persicæ* (Fab.).—Montrose, Colo., sent by Prof. Gillette. New to Colorado. The material is poor, but I think my identification is correct.

(11). *Lecanium quadrifasciatum* Ckll.—The newly hatched larva is dark gray with a pale margin, and two longitudinal dark, dull pink bands. The larger stigmatal spines are quite large and stout, blunt, but not so long as the third joint of antenna, and so nothing to compare with those of *mirabile*. The species has never been found except at the type locality in the Organ Mts., N. M.

(12). *Physokermes insignicola* (Craw).—Mr. Alex. Craw kindly sent me ♂ scales of this. No ♀ scales came with them, so the determination rests with Mr. Craw. The males hatched at the end of March. Alive, they are black, or so dark brown as to seem so. Legs and antennæ brown, rather pale, especially the antennæ. The two white caudal filaments very long, nearly twice as long as body. Wings broad, reddish-hyaline, little colored, with a broad, very distinct pink subcostal stripe. Other particulars concerning this male have been given by Miss Tyrrell, and need not be repeated.

(13). *Pseudoparlatoria parlatorioides* (Comst.) and *Aspidiotus personatus* Comst., were both found by Mr. Alex. Craw on leaves of a cocoanut palm from Acapulco, Mexico. Both are new to Mexico.

(14). *Parlatoria theæ* var. *euonymi* Ckll., n. var.—♀ scale circular to oval, dark brown; exuviæ greenish-black; second skin circular, with an extremely narrow but well defined ochreous margin, hardly projecting beyond scale; first skin only slightly projecting beyond second. Scales removed from twig leave an obscure whitish mark. ♀ boiled in KHO turns green. Three pairs of distinct pale brownish lobes. Lateral groups of glands well apart, as in *theæ*. Plates between

median lobes as in *viridis;* lobes and other plates as in *theæ* very nearly. The following table of the grouped ventral glands in *Parlatoria* may be useful:—

	euonymi	*theæ*	*viridis*	*calianthina*	*pergandii*
caudolaterals,	12–18	7	16–17	19	4–10
cephalolaterals,	21–23	20	9–16	16	4–10
median.	none	1	1–4	4	none

In *P. calianthina* Berlese, the median lobes are only notched without; in *euonymi* they are very strongly and about equally notched on each side, and *pergandii* has them nearly the same.

(15). *Aspidiotus juglans-regiæ* v. *albus* Ckll.—In fair quantity on an osage orange bush (*Maclura*) in Mesilla, March, 1897. Some showed parasite holes. The food plant is new.

(16). *Chionaspis citri* Comst.—On oranges from Samoa; found by Mr. Craw. A new locality, until reported last year by Mr. Craw. It was earlier known from Tonga.

(17). *Chionaspis braziliensis* Sign.—On a fern (seems to be a *Polypodium*) in a California green-house, largely parasitized; mostly ♂ scales. Sent by Mr. Craw. A new locality. It is probable that *brazilensis*, *aspidistræ* and *latus* are varieties of one species. These, with *C. minor*, form a distinct subgenus, in which the females resemble *Pinnaspis*, while the ♂ scales are those of *Chionaspis*. It may be termed *Hemichionaspis*, with *C. aspidistræ* as the type.

THE SEVENTH SESSION OF THE INTERNATIONAL GEOLOGICAL CONGRESS.

(4TH CIRCULAR).

RUSSIA, 1897.

As we have had the honor of announcing in our third circular addressed to all the members of the Congress, the number of participants in the excursions of the Ural, of Esthonia, and of the Volga has been necessarily limited. The committee of organization has found itself obliged to adopt this measure as